SKOBLOV, G.M., inzh.

Continuous high-speed method for laying urban gas pipelines. Stroi. truboprov. 4 no.12:18-20 D '59. (MIRA 13:5)
(Gas, Natural--Pipelines)

SKOBLOV, G.

Work organization in stalling urban gas supply systems. Zhil.-kom.khoz. 9 no.7:10-12 '59. (MIRA 12:11)

1. Upravlyayushchiy trestom "Orggaz" Ministerstva kommunal'nogo khozyaystva RSFSR.

(Gas distribution)

SKOBLOV, G.

Industrial methods of installing interior gas pipes. Zhil.-kom.khoz. 9 no.11:24-25 '59. (MIRA 13:2)

1. Upravlyayushchiy trestom "Orggaz."
(Gas pipes)

SKOBLOV, G.M., inzh.

Let's improve the quality of building and assembling operations. Stroi. truboprov. 5 no.5: 25-27 My '60. (MIRA 13:9)
(Gas, Natural--Pipelines)

SKOBLOV, G.M., inzh.

Unit for protective coating of steel pipes. Stroi. truboprov. 5 no.10:17-18 O'60. (MIRA 13:10)
(Pipe, Steel) (Protective coatings)

SKOBLOV, Georgiy Mikhaylovich; SHAL'NOV, A.P., red.; BUTT, V.P., red.
izd-va; LELYUKHIN, A.A., tekhn. red.

[Mechanization of insulation and welding operations in the construction of urban gas pipes] Mekhanizatsiia izoliatsionno-svarochnykh rabot na stroitel'stve gorodskikh gazoprovodov. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1961. 122 p. (MIRA 14:11)
(Gas pipes)

SKOBLOV, G.M., inzh.

Let's increase the rate of construction of urban gas systems. Stroi. truboprov. 6 no. 2:20-21 F '61. (MIRA 14:5)
(Gas, Distribution)

SKOBLOV, G.M., inzh.

Ways to improve the construction of urban gas systems. Stroi. truboprov. 6 no.9:19-20 S '61. (MIRA 14:9)
(Gas pipes)

SKOBLOV, G.

When comrades do not agree. Zhil.-kom.khoz. 11 no.5:30 My '61.
(MIRA 14:7)

1. Upravlyayushchiy trestom "Orggaz".
(Gas distribution)

SKOBLOV, Georgiy Mikhaylovich; KHODKEVICH, Dmitriy Trofimovich;
SHAL'NOV, A.P., red.; KOMONOV, A.S., red. izd-va; LELYUKHIN,
A.A., tekhn. red.

[Machinery and equipment for the construction of urban gas lines]Mashiny i mekhanizmy dlia stroitel'stva gorodskikh gazoprovodov. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1962. 136 p.
(MIRA 15:8)
(Gas, Natural—Pipelines) (Pipe-laying machinery)

SKOBLOV, G.

Construction of gas network in Gorkiy. Zhil.-kom. khoz. 12 no.3:18-19, 21 Mr '62. (MIRA 15:10)

1. Upravlyayushchiy Gosudarstvennym respublikanskim trestom po organizatsii gazovogo khozyaystva Glavgaza Ministerstva kommunal'nogo khozyaystva RSFSR.

(Gorkiy—Gas distribution)

SH[illegible]V, Georgiy Mikhaylovich; SHAL'NOV, A.F., red.

[Directing construction and the organization of work in supplying gas to cities] Upravlenie stroitel'stvom i organizatsiia rabot po gazifikatsii gorodov. Moskva, Stroiizdat, 1964. 159 p. (MIRA 17:8)

LOSEVA, Ye.A.; SKOBLOV, O.Z.

Stereophotogrammetric method of determining deformations in houses built of plastic materials. Osn., fund. i mekh.grun. 8 no.1:25-26 '66. (MIRA 19:1)

YERMANOK, M.Z.; SKOBLOV, L.S.

Effect of geometric factors on pressure conditions in the extrusion of aluminum alloy billets. TSvet. met. 36 no.7:64-71 Jl '63. (MIRA 16:8)

(Aluminum alloys) (Extrusion (Metals))

YERMANOK, M.Z.; SKOBLOV, L.S.

Analyzing formulas for the determination of forces needed for rod extrusion. TSvet. met. 36 no.10:78-80 O '63. (MIRA 16:12)

L 28860-66 EWP(k)/EWT(m)/T/EWP(t)/ETI IJP(c) JH/DJ/JD/HW

ACC NR: AP6010304 SOURCE CODE: UR/0136/66/000/003/0074/0077

49
48
B

AUTHOR: Yermanok, M. Z.; Skoblov, L. S.; Filina, T. M.

ORG: none

TITLE: Calculation of working stresses during pressing of hollow shapes in dies with built-in core-fin

SOURCE: Tsvetnyye metally, no. 3, 1966, 74-77

TOPIC TAGS: stress analysis, die, metal pressing, metal friction, friction

ABSTRACT: The Al and Mg alloy shapes forged in core-fin dies may be divided into five basic groups (Fig. 1): a, with cylindrical external and internal contours, round tubes; b - with cylindrical external contour and shaped internal contour; c, d - with shaped external contour and cylindrical internal contour; e, f, g, loop type (the area of orifice for these 3 groups of shapes is incommensurably small compared with the cross sectional area of the shape); h, i, j, k, l - with shaped external and internal contours. In this connection, the author corrects the known formulas of pressing stress for the pressing of round tubes in core-fin dies (Perlin, I. L. Teoriya pressovaniya metallov. Izd-vo Metallurgiya, 1964), since Perlin failed to take into account the friction of metal against the die core-fin. Assuming that this fin represents a triangular prism whose sides are friction surfaces, the author derives the

UDC: 669.2/2.:621.97

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L 28860-66
ACC NR: AP6010304

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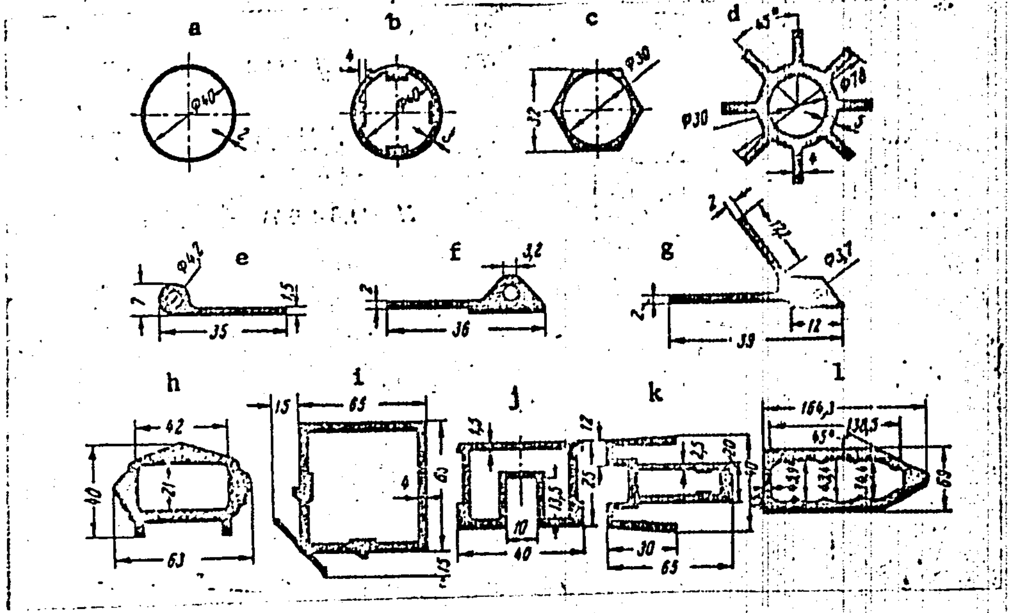

Fig. 1. Basic types of hollow shapes

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formula for friction against the fin:

$$T_{fin} = \frac{0.8D^2_{o.d.}}{\sin\beta}\,\tau_{rp}\int_0^{a_k}\frac{da_x}{0.8D_{o.d.} - a_x};$$

$$T_{fin} = \frac{0.8D^2_{o.d.}}{\sin\beta}\cdot\ln\frac{0.8D_{o.d.}}{0.8D_{o.d.} - a_k}$$

where T_{fin} is friction against the fin, $D_{o.d.}$ is the outside diameter of the forging, τ_{fin} is the mean friction stress at the fin surface. This as well as the other calculation presented shows that, after some corrections, Perlin's formulas may be used for the analytic determination of working stresses during the pressing of hollow shapes in dies with built-in core-fins. Orig. art. has: 2 figures, 9 formulas.

SUB CODE: 11, 13 / SUBM DATE: none

Finned tubes$_{18}$

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L 57481-65 EWT(d)/T

ACCESSION NR: AP5017858

UR/0286/65/000/011/0090/0090
620.17.051

8
B

AUTHOR: Skoblov, O. L.

TITLE: A method for connecting planetary differential speed reducers. Class 42, No. 171614

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 90

TOPIC TAGS: speed regulator, transmission, gear 17

ABSTRACT: This Author's Certificate introduces a method for connecting planetary differential speed reducers to the closed power circuits of test stands which contain left, right and interchangeable speed reducers and a conical auxiliary speed reducer which is the loading device. The method is designed for testing planetary differential speed reducers while simultaneously rotating both output shafts. The input shaft of the speed reducer to be tested is connected to the input shaft of the interchangeable auxiliary speed reducer. The kinematics of this reducer correspond to those of the one being tested. The external shaft of the reducer to be tested is connected to the output shaft of the left auxiliary reducer while the internal

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L 57481-65

ACCESSION NR: AP5017858

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shaft of the reducer being tested is connected to the input shaft of the conical auxiliary speed reducer. The external shaft of the conical reducer is connected to the output shaft of the left auxiliary speed reducer.

ASSOCIATION: none

SUBMITTED: 12Aug63 ENCL: 01 SUB CODE: PR

NO REF SOV: 000 OTHER: 000

Card 2/3

LIBIN, I.Sh., inzh.; SKOBLOVA, V.I., inzh.

Determination of critical stroboscopic lighting level. (MIRA 16:1)
Svetotekhnika 8 no.12:14-16 D '62.

1. Vsesoyuznyy svetotekhnicheskiy institut.
(Stroboscope)
(Medical electronics—Equipment and supplies)

KRYLOV, V.I.; KOROLEV, N.I.; SKOBLYA, N.S.

Remark on the computation of the integral $\int_0^\infty x^s e^{-x} f(x) dx$. Dokl. AN BSSR 3 no.1:3-7 Ja '59. (MIRA 12:3)
(Integrals)

KRYLOV, V.I.; SKOBLYA, N.S.

Numerical inversion of Laplace transforms. Inzh.-fiz. zhur. 4 no.4: 85-101 Ap '61. (MIRA 14:5)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR, g.Minsk.
(Laplace transportation)

SKOBLYA, N.S.

Calculation of the Mellin integral. Dokl.AN BSSR 5 no.4:142-145 Ap '61. (MIRA 14:5)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR. Predstavleno akad. AN BSSR V.I.Krylovym.
(Integrals)

SKOBLYA, Nadezhda Sergeyevna

[Tables for the numerical inversion of the Laplace transform $f(x)=\frac{1}{2\pi i}\int_{c-i\infty}^{c+i\infty} e^{xp}F(p)dp$] Tablitsy dlia chislennogo obrashcheniia preobrazovaniia Laplasa $f(x)=\frac{1}{2\pi i}\int_{c-i\infty}^{c+i\infty} e^{xp}F(p)dp$. Minsk, Nauka i tekhnika, 1964. 42 p. (MIRA 18:1)

SMOBLYA, M.S.

Distribution of roots of polynomials connected with the numerical inversion of a Laplace transformation. Dokl. AN BSSR 9 no. 5:288-291 My '65 (MIRA 19:1)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR. Submitted June 2, 1964.

SKOBNIKOV, K. M.

USSR/Engineering - Foundry, Processes Dec 51

"Recovery of Used Molding Sands in Foundries," K. M. Skobnikov, Cand Tech Sci, Leningrad Center of Mach Bldg Technique

"Litey Proizvod" No 12, pp 4, 5

Discusses processes of recovering sands with aid of disintegrator, air separator and vibrating machine. Expts were conducted with sand usually dumped out of foundry for steel shape castings

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USSR/Engineering - Foundry, Processes (Contd) Dec 51

at Kirov Plant. Method of sand reprocessing decreases haulage of fresh and used sand for this foundry alone by amt equiv to more than 1,000 railroad cars per yr.

203T31

123 - 1 - 392

Translation from: Referativnyy Zhurnal, Mashinostroyeniye, 1957, Nr 1, p. 67 (USSR)

AUTHOR: Skobnikov, K.M.

TITLE: Advanced Labor Methods and Progressive Production Methods in Foundry Practice (Peredovyye metody truda i progressivnyye tekhnologicheskiye protsessy v liteynom proizvodstve)

PERIODICAL: Povysheniye proizvoditel'nosti truda v liteynom proizvodstve, Sbornik. Moscow - Leningrad, Mashgiz, 1955, pp. 5-15

ABSTRACT: The following measures are discussed: 1) casting sample control parts before starting serial production; 2) introduction of assembly line methods and transition to parallel handling; 3) modeling by means of separate coordinating bottom-boards with a maximum increase of metal mold capacity; 4) replacing cast-iron and steel mold boxes with lighter molds made of aluminum, and with cast-and-welded mold boxes; 5) the use of semi-permanent molds, and increase in number of castings to 20 - 25 from each mold; 6) gradual

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Advanced Labor Methods and Progressive Production Methods in Foundry Practice (Cont.)

filling of molds, by the stop-and-go method; 7) installation of additional machinery in the assembly line and maximum speed increase of conveyer system; 8) use of fast-drying mixtures; 9) elimination of loam crust from steel castings by making use of basic materials (chrome iron ore and chrome-magnesite; 10) coremaking by sandblowing method; 11) casting in metal-ceramic molds lined with a mixture of cast-iron shavings, clay and ground chamotte; 12) centrifugal casting of large (diameter up to 700 mm) sleeve pipes in removable sand molds, and of bimetal bushings; 13) precision casting of parts up to 300x300x200 mm in size with minimum finish allowance; 14) precision casting in shell molds; 15) founding high-strength cast iron (used instead of forgings) with 1.5 to 2-fold weight reduction of stock, and 3 to 4-fold

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Advanced Labor Methods and Progressive Production Methods in Foundry Practice (Cont.)

reduction of production time norms; 16) hydraulic cleaning of castings at pressures increased up to 100 atmospheres. Centralized production of molds and other foundry equipment, as well as a centralized supply system of high-grade sand and other materials.

Card 3/3

S.Sh.

SKOBNIKOV, K.M., dotsent, kandidat tekhnicheskikh nauk.

[redacted]

Discovery and utilization of hidden potentialities in founding.
Lit.proizv. no.12:4-6 D '55. (MLRA 9:3)
(Founding)

25(1) PHASE I BOOK EXPLOITATION SOV/1745

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye upravleniye

Peredovaya tekhnologiya liteynogo proizvodstva (Advanced Technology of Casting Production) Kiyev, Mashgiz, 1958. 152 p. 6,000 copies printed.

Ed.: V. K. Serdyuk; Tech. Ed.: Ye. V. Rudenskiy; Editorial Board: A. Ya. Artamonov, K. I. Vashchenko (Resp. Ed.), S. Sh. Zaslavskiy, and B. V. Polyak; Chief Ed. (Yuzhnoye Division, Mashgiz): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for engineering personnel of foundries, and workers of scientific research institutions.

COVERAGE: This book is a collection of articles and papers given by representatives of plants, scientific-research institutes, and vuzes on problems of advanced methods of production and mechanization of the foundry industry at a conference organized by the Kiyev oblast [illegible] (Scientific Engineering Section) of the machine-building indust[illegible] [illegible]tute of Ma[illegible] [illegible]al Engineering of the Academy of Science, [illegible] [illegible] [illegible] in centrifugal pipe precision investment ca[illegible] [illegible] [illegible]tal-mold casting, use of materials promoting scorchin[illegible] [illegible] [illegible] mixtures [blends], and problems of mechanization a[illegible] [illegible]dry processes are covered in this book. An article by N. [illegible] [illegible] with a new cast iron welding method developed by the aut[illegible] [illegible] [illegible] of electrowelder G. A. Piroshenko, and called "[illegible] [illegible] cast iron by means of a metal electrode with an indirect ar[illegible] [illegible] title indicates, the arc acts only indirectly on the w[illegible] [illegible] [illegible]ing between the electrode and the build-up metal. Such welding [illegible] shallow fusion of the cast iron. The formation of a composite surface layer is either absent or limited to a very thin layer of not more than 0.2 mm., making for easy mechanical working. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Advanced Technology of Casting Production (Cont.) SOV/1745

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✓Smolnikov, K. M., Candidate of Technical Sciences. Improving Working Conditions in Foundries 100

MECHANIZATION OF FOUNDRY PROCESSES

✓Koloskov, A. I., Engineer. Mechanization of Production Methods [Investment Casting] 105

✓Titov, N. D., Candidate of Technical Sciences. Overall Mechanization and Automation of Foundry Processes 116

✓Plakhanov, P. N., Engineer. Mechanization of the Foundry Stripping and Cleaning Shops of the Ural Machine-building Plant 131

✓Zelichenko, G. S., Engineer. Molding and Shake-out Production Lines 135

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(6)

PHASE I BOOK EXPLOITATION SOV/3894

Skobnikov, Konstantin Mikhaylovich

Rezervy liteynogo proizvodstva (Unused Production Capacity in the Founding Industry) Moscow, Mashgiz, 1959. 199 p. Errata slip inserted. 3,000 copies printed.

Reviewer: B.B. Gulyayev, Doctor of Technical Sciences, Professor; Ed.: A.M. Lipnitskiy, Engineer; Ed. of Publishing House: T.L. Leykina; Tech. Ed.: O.V. Speranskaya; Managing Ed. for Literature on Machine Building Technology (Leningrad Division, Mashgiz): Ye.P. Naumov, Engineer.

PURPOSE: The book is intended for technical personnel and skilled workers in foundries.

COVERAGE: The book deals with some methods of utilizing unused production capacity in foundries. The author describes experience gained by foundry innovators in improving the efficiency of making cores and molds, chipping and cleaning castings, and the organization of working areas. The problem of mechanization in foundries for unit- and small-lot production of castings and the

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use of special casting methods are discussed. No personalities are mentioned. There are 46 references, all Soviet.

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1. Processability of designs of castings 5
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3. Preparation of pattern and flask accessories 15

Ch. II. Preparation of Molding and Core Mixtures 21
4. Preparation of raw molding materials 21
5. Selection of the composition of molding and core mixtures 26
6. Mechanization of preparation of molding and core mixtures 33

Ch. III. Advanced Methods of Core Making 42
7. Constructions of core boxes 42
8. Efficient technique of making cores 48
9. Mechanization of core making 54

KOBYLYANSKIY, G.I., red. [deceased]; SKOBNIKOV, K.M., kand.tekhn. nauk, retsenzent; SOKOLOV, A.N., kand.tekhn.nauk, red.; SPERANSKAYA, O.V., tekhn.red.

[Mechanization and automatization of labor consuming processes in foundries] Mekhanizatsiia i avtomatizatsiia trudoemkikh protsessov v liteinom proizvodstve. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 226 p. (MIRA 12:9)

(Founding) (Automatic control)

VYSHEMIRSKIY, Mikhail Mikhaylovich; LEBEDEV, K.P., dotsent, kand.tekhn.nauk, retsenzent; SKOBNIKOV, K.M., dotsent, kand.tekhn.nauk, red.; VARKOVETSKAYA, A.I., red.izd-va; FRUMKIN, P.S., tekhn.red.

[Coremaker] Sterzhenshchik. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 172 p. (MIRA 13:5)
(Coremaking)

MIL'MAN, B.S.; LYASS, A.M.; TSYPIN, I.O.; KRAPUKHIN, V.M.; VALISOVSKIY, I.V.; KLOCHNEV, N.I.; AVERBUKH, N.M.; KADNITSOV, V.G.; LIPNITSKIY, A.M.; RUSSIYAN, S.V.; SKOBNIKOV, K.M.

"Iron founding handbook" edited by [doktor tekhn.nauk, prof.] N.G. Girshovich. Book review by B.S.Mil'man and others. Lit. proizv. no.8:46-47 Ag '62. (MIRA 15:11)

(Iron founding--Handbooks, manuals, etc.)
(Girshovich, N.G.)

[illegible], [illegible]; [illegible], [illegible], inzh., red. [illegible],
[illegible], tekhn., red.

[Metal economy in foundry practice] Ekonomiia metalla v liteinom proizvodstve. Moskva, Izd-vo "Mashinostroenie," [illegible] 137 p. (MIRA [illegible])

PA 49T66

USSR/Metals Mar 1946
Iron Ores - Concentration
Geological Prospecting

"Susingen Iron Ore Deposits in Central Asia," M. L. Skobnikov, 4½ pp

"Razvedka Nedr" No 2

Deposit located on south slopes of the Karzhan-Tau Mountain Range. Describes the geographic lay of this deposit, as well as some climatic factors such as heavy snows during winter seasons. Gives geologic structure of the deposit, and presents two sectional maps, one showing geographical location, the other the basic geology of the deposit. Evaluates industrial worth of

USSR/Metals (Contd) 49T66 Mar 1946

deposit. Quality of the ore varies. Ore of the contact-metasomatic type of magnetite and estimated to contain some 30 million tons of ore.

LC 49T66

SKOBNIKOV, M.L., gornyy inzhener.

Mineral resources in India. Gor. zhur. no.5:48-50 My '57.
(India--Mines and mineral resouces) (MIRA 10:6)

SKOBNIKOV M.L.

127-11-5/12

AUTHOR: Skobnikov, M.L.

TITLE: Iron Ore Base of the USSR to the Historical Date (Zhelezorudnaya baza SSSR k istoricheskoy date)

PERIODICAL: Gornyy Zhurnal, 1957, # 11, pp 21-28 (USSR)

ABSTRACT:

The USSR holds the first place in the world in the amount of the prospected resources of iron ores which is estimated at 35.9 billion tons. The average iron content is 37%. By their liability to concentration, these ores can be divided into 3 groups:

1. Those ores which need no concentration. Their amount is 5 billion tons and the average iron content is 55%.
2. Ores which can be easily concentrated. Their amount is 19.6 billion tons and the average iron content is 31%.
3. Ores whose concentration calls for complicated technological processes. Their amount is 11.3 billion tons and the average iron content is 36%.

The qualitative characteristics of various ores and concentrates which are obtained out of them are compiled in Table 1 of the article. The author gives estimates of the amount of prospected resources in the individual regions of the USSR, at 35.9 billion tons. The amount of pig iron which could be ex-

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tracted from these iron ore resources he estimates as follows: The north-western regions of the RSFSR - over 300 million tons; the Ukraine - 2.5 billion tons; the Caucasus - 30 to 35 million tons; the Northern Urals - 200 million tons; the Middle Urals - 750 million tons; the South Urals - 327 million tons; Western Siberia - 135 million tons - without new deposits of magnetite ores which by themselves will suffice to supply the second Western-Siberian metallurgical plant scheduled to be constructed in Stalinsk; Eastern Siberia - 270 million tons; the Far East - 100 million tons, and Kazakhstan - almost 2 billion tons of pig iron. The new mines being constructed in the new ore mining areas will ensure an annual production of 28 million tons of pig iron, and together with those in operation at present will ensure over 60 million tons per year, of which about 30 million tons will be obtained in the eastern part of the USSR. The average iron content of the deposits which will be mined by the new mines under construction amounts to 40%.

There is one Slavic reference. The article contains 2 tables.

AVAILABLE: Library of Congress

Card 2/2

SKOBNIKOV, M.L.

POSPELOV, G.L., starshiy nauchnyy sotrudnik; LAPIN, S.S.; BELOUS, N.Kh.; KLYAROVSKIY, V.M.; KINE, O.G.; VAKHRUSHEV, V.A.; SHAPIRO, I.S., starshiy nauchnyy sotrudnik; KALUGIN, A.S.; MUKHIN, A.S.; GARNETS, N.A.; SPEYT, Yu.A.; SELIVESTROVA, M.I.; RUTKEVICH, V.G.;BYKOV, G.P.; NIKONOV, N.I.; SAKOVICH, K.G.; MEDVEDKOV, V.I.; ALADYSHKIN, A.S.; PAN, F.Ya.; RUSANOV, M.G.; YAZBUTIS, E.A.; ROZHDESTVENSKIY, Yu.V.; SAVITSKIY, G.Ye.; PRODANCHUK, A.D.; LYSENKO, P.A.; LEBEDEV, T.I.; KAMENSKAYA, T.Ya.; MASLENNIKOV, A.I.; PIPAR, R.; DODIN, A.L.; MITROPOL'SKIY, A.S.; LUKIN, V.A.; ZIMIN, S.S.; KOREL', V.G.; DERBIKOV, I.V.; BARDIN, I.P., akademik, nauchnyy red.; GORBACHEV, T.F., nauchnyy red.; YEROFEYEV, N.A., nauchnyy red.; NEKRASOV, N.N., nauchnyy red.; SKOBNIKOV, M.L., nauchnyy red.; SMIRNOV-VERIN, S.S., nauchnyy red. [deceased]; STRUMILIN, S.G., akademik, nauchnyy red.; KHLEBNIKOV, V.B., nauchnyy red.; CHINAKAL, N.A., nauchnyy red.; SLEDZYUK, P.Ye., red.toma; SOKOLOV, G.A., red.toma; BOLDYREV, G.P., red.; VOGMAN, D.A., red.; KASATKIN, P.F., red.; KUDASHEVA, I.G., red.izd-va; KUZ'MIN, I.F., tekhn.red.

[Iron-ore deposits of the Altai-Sayan region] Zhelezorudnye mestorozhdeniia Altae-Saianskoi gornoi oblasti. Vol.1. Book 1. [Geology]

(Continued on next card)

POSPELOV, G.L.---(Continued) Card 2.
Geologiia. Otvetstvennyi red. I.P. Bardin. Moskva. 1958. 330 p.
(MIRA 12:2)

1. Akademiya nauk SSSR. Mezhduvedomstvennaya postoyannaya komissiya po zhelezu. 2. Postoyannaya mezhduvedomstvennaya komissiya po zhelezu Akademii nauk SSSR (for Pospelov, Shapiro, Sokolov). 3. Zapadno-Sibirskiy filial Akademii nauk SSSR (for Vakhrushev,Pospelov.) 4.Zapadno-Sibirskoye geologicheskoye upravleniye (for Sakovich). 5. Krasnoyarskoye geologicheskoye upravleniye (for Pan). 6. Zapadno-Sibirskiy geologorazvedochnyy trest Chermetrazvedka (for Prodanchuk). 7. Sibirskiy geofizicheskiy trest (for Pipar). 8. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut (for Dodin). 9. Gornaya ekspeditsiya (for Mitropol'skiy). 10. Gornoye upravleniye Kuznetskogo metallurg.kombinata (for Lukin). 11. Tomskiy politekhnicheskiy institut (for Zimin). 12. Sibirskiy metallurg.institut (for Korel'). 13. Trest Sibneftegeofizika (for Derbikov). (Altai Mountains--Iron ores) (Sayan Mountains--Iron ores)

SKOBNIKOV, M.L.

BARDIN, I.P., akademik, otv.red.; STRUMILIN, S.G., akademik, red.; SHEVYAKOV, L.D., akademik, red.; SHCHERBAKOV, D.I., akademik, red.; ANTIPOV, M.I., red.; BELYANCHIKOV, K.P., red.; BRODSKIY, V.B., red.; YEROFEYEV, B.N., red.; LIBERMAN, A.Ya., red.; MELESHKIN, S.M., red.; ORLOV, I.V., red.; SMIRNOV-VERIN, S.S., red.; RIKMAN, V.V., red.; SAMARIN, A.M., red.; SLEDZYUK, P.Ye., red.; SKOBNIKOV, M.L., red.; SOKOLOV, G.A., red.; FREY, V.I., red.; KHLEBNIKOV, V.B., red.; SHAPIRO, I.S., red.; SHIRYAYEV, P.A., red.; KUDASHEV, A.I., red.izd-va; KUZ'MIN, I.F., tekhn.red.

[Magnetite ores of the Kustanay Province and their exploitation] Magnetitovye rudy Kustanaiskoi oblasti i puti ikh ispol'zovaniia. Otvetstvennyi red. I.P. Bardin. Moskva, Izd-vo Akad. nauk SSSR, 1958. 489 p. (Zhelezorudnye mestorozhdeniia SSSR). (MIRA 12:2)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. (Kustanay Province--Magnetite)

[illegible]

BARDIN, I.P., akademik, otv.red.; ANTIPOV, M.I., nauchnyy red.; GORBACHEV, T.F., nauchnyy red.; DODIN, A.L., nauchnyy red.; YEROFEYEV, B.N., nauchnyy red.; KALUGIN, A.S., nauchnyy red.; NEKRASOV, N.N., nauchnyy red.; POSPELOV, G.L., nauchnyy red.; SKOBNIKOV, M.L., nauchnyy red.; SLEDZYUK, P.Ye., nauchnyy red., red.toma; SMIRNOV-VERIN, S.S., nauchnyy red. [deceased]; SOKOLOV, G.A., nauchnyy red., red.toma; STRUMILIN, S.G., akademik, nauchnyy red.; KHLEBNIKOV, V.B., nauchnyy red.; CHINAKAL, N.A., nauchnyy red.; SHAPIRO, I.S., nauchnyy red.; KUDASHEVA, I.G., red.izd-va; POLENOVA, T.P., tekhn.red.

[Iron ore deposits of the U.S.S.R.] Zhelezorudnye mestorozhdeniia SSSR. Otv.red.I.P.Bardin. Moskva. Vol.1. [Iron ore deposits of the Altai-Sayan mountainous region] Zhelezorudnye mestorozhdeniia Altae-Saianskoi gornoi oblasti. Book 2. [Description of the deposits] Opisanie mestorozhdenii. 1959. 601 p. (MIRA 13:3)

1. Akademiya nauk SSSR. Mezhduvedomstvennaya postoyannaya komissiya po zhelezu.

(Altai Mountains--Iron ores)
(Sayan Mountains--Iron ores)

LYUDOGOVSKIY, G.I.; SKOBNIKOV, M.L., nauchnyy red.; NEMANOVA, G.F., red. izd-va; BYKOVA, V.V., tekhn. red.

[Industrial specifications for the quality of raw minerals; a manual for geologists] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr. No.63. [Vanadium] Vanadii. Nauchn. red. M.L.Skobnikov. Izd.2., perer. 1960. 40 p. (MIRA 14:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.

(Vanadium)

SKOBNIKOV, M.L.

Commercial iron ore deposits in Western Siberia and the Khakass Autonomous Republic. Gor.zhur. no.5:3-8 My '60. (MIRA 14:3)

1. Gosplan SSSR.
(Siberia, Western—Iron ores)
(Khakass Autonomous Province—Iron ores)

FREY, V.I.; YEFIMOV, M.V.; FEYGIN, L.M.; MININA, K.G.; MALYSHEV, I.I., retsenzent; SKOBNIKOV, M.L., retsenzent; BRAUN, G.A., retsenzent; BRAUN, G.A., retsenzent; KHRUSHCHOV, N.A., retsenzent; GRISHINA, T.B., red. izd-va; IYERUSALIMSKAYA, Ye., tekhn. red.

[Comparative evaluation of iron-ore deposits based on the results of a preliminary prospecting] Sravnitel'naia otsenka zhelezorudnykh mestorozhdenii po rezul'tatam predvaritel'noi razvedki. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 153 p. (MIRA 14:11)

(Iron ores)

SKOBNIKOV, M.L.

Control of the depletion of ores must begin at the mine planning stage. Gor. zhur. no. 6:3-5 Je '61. (MIRA 14:6)

1. Gosplan SSSR, Moskva.
(Mining geology)

CHERNYSHEV, G.B.; SKOBNIKOV, M.L., nauchnyy red.; LYUBCHENKO, Ye.K., red. izd-va; SHMAKOVA, T.M., tekhn. red.

[Industry's requirements as to the quality of mineral raw materials] Trebovaniia promyshlennosti k kachestvu mineral'nogo syr'ia; spravochnik dlia geologov. Moskva, Gosgeoltekhizdat. No.59. [Iron] Zhelezo. 1962. 78 p. (MIRA 15:7)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya.

(Iron)

SKOBNIKOV, M.L.

Iron-ore base for ferrous metallurgy in the U.S.S.R. Gor.zhur. no.8:3-9 Ag '62. (MIRA 15:8)

1. Gosudarstvennyy planovoy komitet Soveta Ministrov SSSR.
(Iron ores)

DOLGOPOLOV, Konstantin Vasil'yevich; SOKOLOV, Aleksey Vasil'yevich; FEDOROVA, Yevgeniya Fedorovna; SKOBNIKOV, M.L., retsenzent; TYLKINA, M.A., st. nauchn. sotr., retsenzent; FREYKIN, Z.G., st. nauchn. sotr., retsenzent; RODIONOVA, F.A., red.; PASHCHENKO, O.V., red. kart; KARPOVA, T.V., tekhn. red.

[Iron ores of the U.S.S.R.] Zheleznye rudy SSSR; posobie dlia uchitelia. Moskva, Uchpedgiz, 1963. 157 p. (MIRA 17:2)

1. Glavnyy spetsialist Gosplana SSSR (for Skobnikov).
2. Institut chernoy metallurgii imeni Baykova (for Tylkina).
3. Institut geografii AN SSSR (for Freykin).

SKOBNIKOVA, V. K.

Skobnikova, V. K. - "The patho-architectonic of the brain inclosed trauma of the cranium during the acute period," Trudy Tsentr. in-ta psikhiatrii, Vol. IV, 1949, P. 96-111

SO: U-4934, 29 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

SKOBNIKOVA, V. K.

Clinical aspect and pathomorphology of chronic rheumatic psychoses. Nevropat. psikhiat., Moskva 19 no. 4:79-82 July-Aug. 1950. (CLML 20:1)

1. Of the Psychiatric Clinic (Director -- Prof. M. O. Gurevich, Active Member of the Academy of Medical Sciences USSR), First Moscow Order of Lenin Medical Institute.

SKOBNIKOVA, V. K.

PA 227T20

USSR/Medicine - Brain
Injuries

Mar/Apr 52

"Granular Atrophy of the Cortex in a Closed Trauma of the Cranium," V.K. Skobnikova, Moscow

"Arkhiv Patol" No 2, p 82

Gives a brief discussion of the frequent controversy on the etiology of granular atrophy of the cerebral cortex. Author states that this condition is usually attributed to vascular disorder, and has never been recognized as an independent pathological condition of the brain. Describes a case of concussion received during war action,

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with death occurring 4 years after the injury was received. Post-mortem findings showed a slow process of gliosclerosis in various stages of development, and a secondary microgyria involving the entire surface of the cerebral cortex. Assumes that this condition was a direct result of trauma caused by the concussion, and in some cases may serve as substratum to a traumatic dementia in closed injuries to the cranium.

227T20

SKOBNIKOVA, V. K. (Cand. Med. Sci.)

Analiz Letal'nossti Psikhicheski Bol'nykh i Sostoyaniye Prozektorskogo Dela v Psikhonevrologicheskikh Bol'nitsakh Povolzh'ya. p. 511

V sb Aktual'n. probl. nevropatol. i psikhiatrii. Kuybyshev, 1957.

Iz Gosudarstvennogo Nauchno-issledovatel'skogo Institdta Psikhiatrii M Z RSFSR

SKOBNIKOVA, V.K., kand.med.nauk (Moskva)

Anatomical changes of the brain in influenzal psychoses; abstract.
Kaz. med. zhur. no.1:116 Ja-F'61 (MIRA 16:11)

SKOBNIKOVA, V.K. (Moskva)

Psychoses induced by rheumatic fever in senility. Nauch. trudy Riaz. med. inst. 14:130-136 '63. (MIRA 17:5)

SKOBNIKOVA, V.K., kand.med.nauk

Errors in the differential diagnosis between a vascular lesion and a tumor of the brain. Trudy 1-go MMI 21:471-483'63. (MIRA 16:9)

1. Kafedra psikhiatrii (zav. - prof. V.M.Banshchikov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

(DIAGNOSIS, DIFFERENTIAL) (CEREBROVASCULAR DISEASE)
(BRAIN—TUMORS)

SKOBNIKOVA, V.K., kand.med.nauk

Erroneous diagnosis of the inflammatory process in vascular lesions of the brain. Trudy 1-go MMI 21:484-501'63. (MIRA 16:9)

1. Kafedra psikhiatrii (zav. - prof. V.M.Banshchikov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(CEREBROVASCULAR DISEASES) (ENCAPHALITIS)

SKOBNIKOVA, V.K., kand.med.nauk

Diagnosis of senile dementia in cerebral atherosclerosis.
Trudy 1-go MMI 21:502-510'63. (MIRA 16:9)

1. Kafedra psikhiatrii (zav. - prof. V.M.Banshchikov) 1-go
Moskovskogo ordena Lenina meditsinskogo instituta imeni
I.M.Sechenova.
(CEREBRAL ARTERIOSCLEROSIS) (SENILE PSYCHOSIS)

SKOBNIKOVA, V.K.

Mental disorders in the early stages of syphilis. Trudy 1-g MMI 34:312-320 '64.

Course of leukemia with mental disorders. Ibid.:321-331

Erroneous diagnosis in the clinical aspects of primary meningoencephalitis with mental disorders. Ibid.:332-342
(MIRA 18:15)

1. Kafedra psikhiatrii (zav. - zasluzhennyy deyatel' nauki prof. V.M. Banshchikov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

SKOBOCHKIN, B.Yo.; CHEKAYEVA, T.I.

Problems of the theory of operation of double-acting hydraulic-impact machines. Trudy Inst. gor. dela AN Kazakh. SSR 17:129-145 '65. (MIRA 18:9)

SKOBOLOV, P.A.

133-7-16/28

AUTHOR: Skobolov, P.A., Engineer.

TITLE: On "Minus Ends" During Rolling of Round Profiles (O "minusovykh kontsakh" pri prokatke kruglykh profiley)

PERIODICAL: Stal', 1957, No.7, pp. 629 - 630 (USSR)

ABSTRACT: On rolling round profiles on the back end of finished strip, a defect is occasionally formed called "minus end" (incomplete profile). The cause of the formation of this defect is postulated as follows: it is indicated that the end of strip vibrates similar to rod clamped at one end. This vibration forms an elastic wave penetrating into the seat of deformation, pressing the strip being rolled towards collars of the rolls (Figs. 1 and 2). The use of long passes, roller passes or improvement in the fixing of rolls is proposed for the elimination of the defect. There are 2 figures and 1 Russian reference.

ASSOCIATION: Chelyabinsk Metallurgical Works (Chelyabinskiy Metallurgicheskiy Zavod)

AVAILABLE: Library of Congress.

Card 1/1

GRABOVSKIY, M.A.; ZHERDENKO, O.N.; SKOBORODKIN, Yu.P.

Possible use of magnetic powder in studying the composition of iron ores. Izv.AN SSSR.Ser.geofiz. no.7: 970-973 Jl '60. (MIRA 13:7)

1. Akademiya nauk SSSR, Institut fiziki Zemli.
(Iron ores--Magnetic properties)
(Ores--Sampling and estimation)

MENDELEYEV, Dmitriy Ivanovich [deceased]; DUBRAVIN, A.I., inzh.-kapitan 1-go ranga, otv.red.toma; KOCHINA, P.Ya., retsenzent; SKOBOV, D.P., prof., doktor tekhn.nauk, zasluzhennyy deyatel' nauki i tekhniki, retsenzent; TOLKACHEV, S.S., red.izd-va; ZENDEL', M.Ye., tekhn.red.

[Conquest of the Far North] Osvoenie Krainego Severa. Moskva, Izd-vo Akad.nauk SSSR. Vol.1. [High latitudes of the Arctic Ocean] Vysokie shiroty Severnogo Ledovitogo okeana. 1960. 427 p. (MIRA 13:7)

1. Deystvitel'nyy chlen AN SSSR (for Kochina).
(Arctic Ocean)

KANER, E.A.; SKOBOV, V.G.

Theory of resonance generation of weakly damped electromagnetic waves in metals. Zhur. eksp. i teor. fiz. 45 no.3:610-630 S '63. (MIRA 16:10)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR i Institut radiofiziki i elektroniki AN Ukrainskoy SSR.
(Electromagnetic waves)

SOV/56-35-5-55/56

21(7)

AUTHOR: Skobov, V. G.

TITLE: The Decay of a Photon in a Homogeneous Magnetic Field Into Two Photons (Raspad fotona v odnorodnom magnitnom pole na dva fotona)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 5, pp 1315-1317 (USSR)

ABSTRACT: According to the theory developed by W. H Furry (Farri)(Ref 1) the decay of a photon in a vacuum into two photons is impossible. However, in the case of a decay into a larger number of photons, the statistical weight of the terminal state becomes equal to zero. Therefore, the possible existence of the above-mentioned spontaneous decay is of interest. As the magnetic field,in this case, cannot be considered to be a perturbation, a causal Green (Grin) function must be used which takes the existence of this field into account. First, an expression for the Green function of the electron found by J. Schwinger (Shvinger) is given by taking the existence of a weak and constant electric field into account. This formula is then also written down in momentum-representation. The theorem by Farri does, however, not apply in the case

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SOV/56-35-5-55/56

The Decay of a Photon in a Homogeneous Magnetic Field Into Two Photons

of the presence of a constant external field, and therefore a decay into two photons is possible in a homogeneous field. An expression for the corresponding element of the scattering matrix is written down. Next, this matrix is given in momentum-representation, and herefrom the total photon decay probability (per unit of time) can easily be calculated. The author thanks L. E. Gurevich for his assistance and V. M. Shekhter for valuable advice. There are 2 references.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physico-Technical Institute of the Academy of Sciences, USSR)

SUBMITTED: July 31, 1958

Card 2/2

83740

S/056/60/038/004/033/048
B006/B056

24.2100

AUTHOR: Skobov, V. G.

TITLE: The Theory of the Conductivity of an Electron Gas in a Strong Magnetic Field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 4, pp. 1304 - 1310

TEXT: The author investigates the conductivity of an electron gas in a strong magnetic field at $\omega\tau > 1$ (τ = relaxation time, $\omega = eH/m$; $\hbar = c = 1$). Only elastic scattering of electrons by randomly distributed centers at rest is investigated, whose effective radius is considered to be small as compared to 1) the wavelength of the electrons and 2) the distances between the scatterers. Electron - scatterer interaction is treated without using the perturbation theory, as at low energies Born approximation is unsuited. It is further assumed that the directions of electric and magnetic field strengths are perpendicular to each other. The author proceeds from the general form of the conductivity tensor, which was obtained by Kubo (Ref. 2). He first investigates a non-degenerate

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The Theory of the Conductivity of an Electron Gas in a Strong Magnetic Field

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electron gas (Boltzmann statistics) by means of the single-electron Hamiltonian $\mathcal{H} = \mathcal{H}_o + V$; $\mathcal{H}_o = (\vec{p} - e\vec{A})^2/2m$, $V = \sum_i V_i$, V_i is the Hamiltonian of the interaction between the electron and the i-th scattering center, and $\vec{A}$ is the vector potential of the $\vec{H}$-field. It is found that σ_{xx} and σ_{yy} are proportional to the square of the Larmor radius of the electron and the collision frequency with the scatterers; $\sigma_{yx} = -n_e e^2/m\omega$; n_e is the electron concentration. σ_{xx} is given for two limiting cases by approximate expressions. The author then investigates a degenerate electron gas (Fermi statistics), and uses the second quantization representation for determining $\sigma_{\mu\nu}$. For $\sigma_{xx} = \sigma_{yy}$ formula (21) is obtained. For special cases considerably simplified equations are again obtained: (22), (24), and (27). The author thanks L. E. Gurevich for suggesting the subject, and S. V. Maleyev for discussions. There are 4 references: 1 Soviet, 2 US, and 1 Japanese.

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83740

The Theory of the Conductivity of an Electron Gas in a Strong Magnetic Field

S/056/60/038/004/033/048
B006/B056

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Institute of Physics and Technology of the Academy of Sciences USSR)

SUBMITTED: November 18, 1959

Card 3/3

22131
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B102/B205

24.1200 1158, 1160, 1395

AUTHORS: Gurevich, V. L., Skobov, V. G., Firsov, Yu. A.

TITLE: Giant quantum oscillations of sound absorption by metals in a magnetic field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 3, 1961, 786-791

TEXT: A theoretical study has been made of low-temperature sound absorption by metals placed in a magnetic field. Supposing that $\hbar\Omega \gg kT$ (Ω - Larmor frequency of electrons), that the mean free path of conduction electrons is very large compared to the sonic wavelength, and that the latter is large compared to the Larmor radius of conduction electrons, sound absorption can be regarded as a direct absorption of phonons by metal electrons. In the absence of a magnetic field, those electrons will play the principal role in absorption, whose velocity component $v_{\varkappa}$ in the direction of the wave vector $\vec{\varkappa}$ of sound waves is equal to the phase velocity w_p of sound. This case has already been studied by A.I.Akhiyezer,

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B102/B205

Giant quantum oscillations...

M. I. Kaganov, and G. Ya. Lyubarskiy (ZhETF, 32, 837, 1957), and the present authors adopted a similar procedure. For the sake of simplicity, an isotropic quadratic dispersion law is assumed to hold for electrons; so, the electron energy in the magnetic field is given by $\varepsilon_n = \hbar\Omega(n+1/2) + p_z^2/2m$, where n indicates the oscillator quantum number according to Landau, $\Omega = eH/mc$ the Larmor frequency, m the effective mass, and p_z the projection of the quasi-momentum on the direction of the field $\vec{H}$ ($\mp$ z-axis). Taking into account the theorems of conservation of energy and quasi-momentum, and $\varepsilon_{n'}(p_z+\hbar\varkappa_z) = \varepsilon_{n'}(p_z) + \hbar v_z\varkappa_z$, one obtains the condition $\Omega(n'-n) + w_p\varkappa = v_z\varkappa_z$ (5). If the magnetic field is strong enough and, thus, $\Omega > \varkappa_z v_F$ (v_F - Fermi velocity), then condition (5) will be satisfied only with $n = n'$. Then, the quasi-momentum of electrons participating in sound absorption is equal to $p_z^0 = mw_p/\cos\vartheta$, where ϑ symbolizes the angle between the vectors $\vec{\varkappa}$ and $\vec{H}$. However, if $w_p \ll v_F$, then those electrons will make the greatest contribution to sound

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Giant quantum oscillations...

absorption, for which $p_z \ll p_F$. On the other hand, only those electrons participate in absorption, the energies of which belong to a blurred Fermi distribution. The quasi-momenta corresponding to these energies are shown in the attached figure. $\varepsilon_n(p_z)$ are parabolas cutting the band of width kT. Its center line forms the level of the chemical potential ζ. The band width is smaller than the distance between the parabolas, in accordance with the condition $\hbar\Omega \gg kT$. The projections of the sections on the abscissa indicate the intervals of allowed and forbidden p_z values. The width of the intervals diminishes as one approaches p_F. Their position depends on $\vec{H}$. If $\vec{H}$ is such that p_z^o is in the interval of allowed p_z values, a particularly strong sound absorption will occur. The occurrence of giant oscillations of the coefficient of sound absorption is determined by the condition $\zeta \gg \hbar\Omega \gg kT$. This case is now investigated in greater detail. The contribution to absorption by transverse electric fields produced by deformation of the conductor by sound waves is neglected, and elastic electron scattering is assumed.

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Giant quantum oscillations...

$$\Gamma = \frac{\pi}{V_0 \rho u_0^2 w} \sum_{\alpha\alpha'} \frac{\partial F_\alpha}{\partial \zeta} \langle \alpha | U | \alpha' \rangle |^2 \delta(\omega_{\alpha\alpha'} + \omega). \qquad (14)$$

is obtained for the coefficient of sound absorption. Here, ϱ is the density of the crystal, u_o the sound-wave amplitude, w the group velocity of sound, V_o the volume of sound, $\langle\alpha|U|\alpha'\rangle$ a matrix element of the operator U ($U = \Lambda_{ik} u_{ik} \cdot e^{i\vec{\varkappa}\vec{r}}$; u_{ik} = amplitude of the deformation tensor in the sound wave; Λ_{ik} = tensor related to the quasi-momentum); the subscripts α and α' indicate the state of the free electron in the magnetic field; $\hbar\omega_{\alpha\alpha'} = \varepsilon_\alpha - \varepsilon_{\alpha'}$. In the simplest case where the components of Λ_{ik} are constant, the electron spectrum is quadratic and isotropic, and $\vec{\varkappa}$ and $\vec{H}$ are parallel, one has

$$\Gamma = \Gamma_0 \frac{\hbar\Omega}{8kT} \frac{\varkappa}{m} \sum_{n, s_z} \int dp_z \delta\left(\frac{\varkappa p_z}{m} + \frac{\hbar\varkappa^2}{2m} - \omega\right) \times$$

$$\times \mathrm{ch}^{-2}\left[\frac{\zeta - \hbar\Omega(n + 1/2) - \mu_0 s_z H - p_z^2/2m}{2kT}\right], \qquad (16)$$

where μ_o is the Bohr magneton. $\Gamma_o = m^2 |\Lambda_{ik} n_{ik}|^2 / 2\pi\hbar^2 \varrho n_o^2 \varkappa\omega$ is the

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coefficient of sound absorption at H = 0. Integration with respect to p_z yields

$$\Gamma = \Gamma_0 \frac{\hbar\Omega}{8kT} \sum_{n,\,s_z} \mathrm{ch}^{-2}\left[\frac{\hbar\Omega(n+1/2) + s_z\mu_0 H - \zeta}{2kT}\right]. \qquad (18)$$

If $\hbar\Omega \ll kT$ and summation is performed over n, one obtains $\Gamma = (\Gamma_0/2)\int\limits_0^{\infty} \frac{dy}{\mathrm{ch}^2(y-\zeta/2kT)} \approx \Gamma_0$. Finally, the experimentally interesting case $\hbar\varkappa^2/2m \ll \nu$; $\omega \ll \nu$ is discussed. Here, the δ-function can be replaced by $\nu/\pi\left[\nu^2 + (\hbar\varkappa p_z/m)^2\right]$, and by proceeding to the dimensionless integration variable y one obtains

$$\Gamma = \Gamma_0 \frac{\hbar\Omega}{2kT}\int dy\, \frac{1}{\pi}\, \frac{B}{1+B^2y^2} \sum_{n,\,s_z} \frac{1}{4}\,\mathrm{ch}^{-2}\left(\frac{y-A_n}{2}\right). \qquad (22)$$

$y = p_z(2mkT)^{-1/2}$; $B = (2kT/m)^{1/2}\varkappa/\nu$; $A_n = \left[\zeta - \hbar\Omega(n+\frac{1}{2}) - s_z\mu_0 H\right]/kT$. In the case of giant oscillation, the ratio between the maximum and the minimum absorption coefficients is given by $\Gamma_{max}/\Gamma_{min} \sim \varkappa l(\hbar\Omega/\zeta)^{1/2}\hbar\Omega/kT \gg 1$ (25). It is noted that classical computations are only possible if $\hbar\Omega \ll kT$; if

22131
S/056/61/040/003/011/031
B102/B205

Giant quantum oscillations...

$\hbar\Omega \gg kT$, sound absorption in a magnetic field must be treated in a quantum-theoretical manner. There are 1 figure and 4 Soviet-bloc references.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Institute of Physics and Technology, Academy of Sciences USSR); Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences USSR)

SUBMITTED: July 25, 1960 (initially), November 24, 1960 (after revision)

Card 6/7

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B109/B212

24.1200
24.2300

AUTHOR: Skobov, V. G.

TITLE: Quantum theory of sound absorption by metals located in a magnetic field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 5, 1961, 1446-1451

TEXT: A previous paper (Ref. 1: V.L. Gurevich, V.G. Skobov, Yu. A. Firsov. ZhETF, 40, 3, 1961) showed that big fluctuations in sound absorption can occur if the magnetic field is changed. The present author analyzes the effect of electron scattering on sound absorption by metals located in strong magnetic fields $\hbar\Omega \gg kT$ (Ω - Larmor frequency of electrons) and with large spatial dispersion $\varkappa l \gg 1$ ($l = v_F/\nu$; $\varkappa$ - wave vector of sound; v_F - Fermi velocity; ν - frequency of collisions of electrons with the scattering medium. The transverse electric field which appears during the deformation of the crystal, is neglected. Assuming that the electron scattering is caused by their interaction with the

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randomly distributed fixed centers, that their radius of action is small compared to their mean spacing and the electron wavelength, and that the disturbance caused by the interaction of the electron with the sound wave has the form $\mathcal{H}'(t) = \frac{1}{2}(Ue^{-i\omega t} + U^{+}e^{i\omega t})$, $U = U_0 e^{i\varkappa r}$, (2)

(U_0 Hermitean operator), then the energy absorbed by the electrons per unit time is given in first Born approximation by

$$Q = \frac{\pi\omega}{2}\sum_{ab}\langle |U_{ba}|^2 \delta(\omega_{ab}+\omega)[f_a(1-f_b) - f_b(1-f_a)]\rangle. \qquad (4)$$

a and b characterize the steady states of $\mathcal{H}$; $\omega_{ab} = E_a - E_b$; f_a - probability to find an electron in state a (simple Fermi function having the argument $(E_a - \zeta)/kT$).

$$Q = \frac{\pi\omega}{2}\int_{\Omega/2}^{+\infty} dE\,[f(E) - f(E+\omega)]\,I(E), \qquad (5)$$

is equivalent to (4), where I(E) is represented by a linear combination of four terms. After extensive calculations and using a Green function (V.G. Skobov. ZhETF, 37, 1467, 1959; ZhETF,38,1304,1960), the following approximation is obtained for I(E):

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$$I(E) \approx \frac{V_0}{(2\pi)^3} |U_0|^2 (8m)^{1/2} m\Omega \sum_{n=0}^{N-1} \frac{\nu(E)\,[E-\Omega(n+1/2)]^{-1/2}}{2\varkappa^2 m^{-1}\,[E-\Omega(n+1/2)] + \nu^2}, \qquad (25)$$

where V_0 denotes the volume of the crystal. At $(\varkappa l)^2$ [illegible] / it can easily be seen that a change of H will bring about a strong fluctuation of the energy Q which is absorbed by the electrons. If (Ω/ζ) [illegible] $(\varkappa l)^2 \gg 1$ is valid, then the following expression is obtained from (25) for the sound-absorption coefficient:

$$\Gamma(H) = \Gamma_0 \left\{ 1 + \varkappa l \left(\frac{\Omega}{\zeta}\right)^{1/2} \sum_{n=1}^{\infty} (-1)^n A_n \frac{\cos[2\pi n\zeta/\Omega - \pi/4]}{\pi\sqrt{n}} \right\}, \qquad (28)$$

$$A_n = \frac{2\pi^2 nkT/\Omega}{\operatorname{sh}(2\pi^2 nkT/\Omega)}, \qquad \Gamma_0 = \frac{m^2 |\Lambda_{ik} u_{ik}|^2}{2\pi\rho |u|^2 s\varkappa},$$

where ρ denotes the crystal density, s the velocity of sound, Γ_0 the absorption coefficient if a magnetic field is lacking. The author thanks Yu. A. Bychkov and L. D. Landau for suggestions. There are 8 Soviet-bloc references.

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[illegible]

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Quantum theory of sound absorption...

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Institute of Physics and Technology, Academy of Sciences USSR)

SUBMITTED: December 19, 1960

3558

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S/056/62/042/003/045/049
B108/B102

AUTHORS: Kazarinov, R. F., Skobov, V. G.

TITLE: Possibility of amplifying ultrasound in semimetals in an electric field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 910-912

TEXT: The amplification of ultrasound by conduction electrons in an electric field is discussed. Amplification is explained as follows: When no electric field is present, the electrons will absorb acoustic energy Q_0. This leads to an electron-acoustic current $\vec{J}$ proportional to Q_0. The sonic energy absorbed by the electrons per unit time is therefore $Q = Q_0 + \vec{J}\vec{E}$ (linear approximation with respect to $\vec{E}$). The sound will be amplified by the electrons when $\vec{E}$ is such that $Q < 0$. When one sound quantum is absorbed, the electron velocity will change by the amount $\hbar\varkappa/m$ ($\varkappa$ - wave vector of sound, m - effective mass of electron). During the time τ between two collisions the electron is shifted by $\Delta = \hbar\varkappa\tau/m$. In

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Possibility of amplifying ...

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a collision the velocity will change and the electron will "let go" its absorbed momentum. The acoustic current is therefore $J = e\hbar\varkappa\tau\nu/m$, where ν is the number of sound quanta absorbed per unit time by the electrons. Considering that $Q_o = \hbar\omega\nu$ (ω - sonic frequency) one can write $Q = Q_o(1 + \varkappa\vec{v}_d/\omega)$, where $\vec{v}_d = e\tau\vec{E}/m$ denotes the drift velocity. If therefore $\varkappa$ and $\vec{v}_d$ are antiparallel, and if the amount v_d is greater than the phase velocity s of sound, then the absorption coefficient $\Gamma = Q/W$ will be negative. Bismuth-type semimetals are obviously suited best for amplifying sound. It is shown that the presence of a magnetic field perpendicular to the electric one is not an interference, but may even be favorable. There are 2 references: 1 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: A. R. Hutson et al. Phys. Rev. Lett., 7, 6, 1961.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physicotechnical Institute of the Academy of Sciences USSR)

SUBMITTED: January 17, 1962

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KAZARINOV, R.F.; SKOBOV, V.G.

Theory of the amplification of ultrasound by semimetals in electric and magnetic fields. Zhur. eksp. i teor. fiz. 43 no.4:1496-1503 0 '62. (MIRA 15:11)

1. Fiziko-tekhnicheskiy institut im. A.F. Ioffe AN SSSR.
(Ultrasonic waves) (Electric fields) (Magnetic fields)

SKOBOV, V. G.

E. A. Kaner and V. G. Skobov, "Undamped Waves in Metals,"

report submitted for the Conference on Solid State Theory, held in Moscow, December 2-12, 1963, sponsored by the Soviet Academy of Sciences.

SKOBOV, V. G.

Dissertation defended for the degree of ~~Doctor~~ CANDIDATE of Physicomathematical Sciences at the Institute of Physical Problems imeni S.I. Vavilov in 1962:

"Quantum Theory of Sound Absorption in a Magnetic Field."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages119-145

S/056/63/044/004/035/044
B102/B186

AUTHORS: Kazarinov, R. F., Skobov, V. G.

TITLE: Theory of electrical conductivity of ionic semiconductors in strong electric and magnetic fields

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 4, 1963, 1368 - 1374

TEXT: The electrical conductivity of ionic semiconductors in strong crossed electric and magnetic fields ($\vec{E}\perp\vec{H}$) is investigated for the case of low temperatures, when the electron energy relaxation is effected by piezoelectric phonons or weak dispersion of optical phonons. The electric field is assumed such that the electron energy remains considerably below the maximum energy of optical phonons ($\hbar\omega_0$). Electron scattering is assumed to be mainly due to the presence of ionized impurities; electron-electron scattering is neglected (compensated impurity semiconductor). All impurities are assumed to be ionized and the electron concentration to be independent of the field strength (n=const); $\vec{E}\parallel x$; $\vec{H}\parallel z$. First the case is

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considered when the impurities do not contribute to ion scattering ($\tau_i \gg \tau_f$).
Then the current density is given by $j_x = j_x^{(o)}\left[1 + \frac{1}{3}(cE/sH)^2\right]^{-1/2}$, where s
is the average sonic velocity. In the opposite case ($\tau_i \ll \tau_f$), $j_x \sim (EH)^{-1/2}$,
and the mean electron energy $\bar{z} \sim E$; the collision frequency with charged im-
purities and consequently the conductivity is proportional to $\bar{z}^{-3/2}$. These
relations are valid if $\Omega\tau_i \gg 1$, where Ω is the cyclotron frequency. The
tensor of specific resistance $\varrho_{ik} = E_i j_k / j^2$ is also calculated for this
case: $\varrho_{xx} \sim j^{-3/2}$ and $\varrho_{xy} = H/nec$. Subsequently the case is considered that
electron energy relaxation is due to the dispersion of optical phonons and
that momentum relaxation is due to the presence of the impurity ions. For
$z \gg 1$, $\nu_o \ll \nu_i(z) \ll \Omega$ and $\nu_i(z) \approx 1/\tau_i z^{3/2}$ and $z \approx g^{-2/5}$, $j_x \approx j_x^{(o)} g^{3/5} \sim H^{-4/5} E^{-1/5}$
(negative differential conductivity). These relations are applicable for
$g \ll 1$ and $\nu_o \ll \Omega$. $\varrho_{xx} = \sigma_o^{-1}(2\Delta/mc^2)^{3/5}(nec/j)^{6/5}$, where $\Delta = \lambda^2 \nu_o \tau_i \omega_o$ and σ_o
is the conductivity with $H=0$ and $E \to 0$. It may therefore be concluded that

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with increasing E the mean electron energy increases and the collision frequency with impurity ions decreases. In a certain range of E the conductivity current decreases with increasing E. There are 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

SUBMITTED: November 21, 1962

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KANER, E.A.; SKOBOV, V.G.

Electromagnetic excitation in metals near cyclotron resonance. Fiz. tver. tela 6 no. 4:1104-1114 Ap '64. (MIRA 17:6)

1. Institut radiofiziki i elektroniki AN UkrSSR, Khar'kov.

S/0181/64/006/006/1675/1683

ACCESSION NR: AP4039653

AUTHOR: Skobov, V. G.

TITLE: Quantum theory of electromagnetic wave propagation in metals

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1675-1683

TOPIC TAGS: electromagnetic propagation, electromagnetic wave, quantum theory, electron scattering, metal physical property, conductivity, magnetic field

ABSTRACT: The high-frequency conductivity of a metal in a strong magnetic field is considered when there is scattering of conduction electrons by neutral impurities. In metals with an equal concentration of electrons and holes ($n_1 = n_2$) magneto-hydrodynamic waves of frequency ω with the electrical field vector polarized in a plane perpendicular to the constant magnetic field H can exist when

$$\nu_s \ll \omega \ll \Omega_s \quad (s = 1, 2).$$

Here the cyclotron frequency of the carriers

$$\Omega = \frac{eH}{mc}$$

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ACCESSION NR: AP4039653

ν is the collision frequency of the carriers with the scattering centers, and 1 and 2 refer to electrons and holes respectively. The attenuation of these waves is due to scattering of the carriers and is described by the real part of the transverse conductivity. The general expression for the transverse conductivity as a function of electron energy is of the form

$$\sigma_{xx}(\varepsilon)=\frac{e^2}{4\pi^2}\sqrt{\frac{m}{2}}\sum_{n=0}^{N+1}\left(n+\frac{1}{2}\right)\left\{\nu(\varepsilon+\omega)\,\mathrm{Re}\left[\varepsilon-\Omega\left(n+\frac{1}{2}\right)+\frac{i}{2}\nu(\varepsilon)\right]^{-1/2}+\right.$$

$$\left.+\nu(\varepsilon)\,\mathrm{Re}\left[\varepsilon+\omega-\Omega\left(n+\frac{1}{2}\right)+\frac{i}{2}\nu(\varepsilon+\omega)\right]^{-1/2}\right\},$$

where the upper limit of the summation is determined by the condition

$$\varepsilon-\Omega(N+3/2)<0<\varepsilon-\Omega(N+1/2)$$

(in these and in some of the following equations the system of units is such that $\hbar=c=1$). For the high-frequency case where the temperature in energy units $T \ll \omega$

$$\mathrm{Re}\,\sigma_{xx}(\omega,H)\doteq\sum_i\frac{ne^2\nu_i}{m\Omega^2}(1+C_1+C_2),$$

$$C_1=\frac{5}{4}\frac{\Omega}{\omega}\left[\sqrt{\Delta(\zeta)+\hbar\omega}-\sqrt{\Delta(\zeta)-\hbar\omega}\,\theta(\Delta(\zeta)-\hbar\omega)\right]\zeta^{-1/2},$$

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$$C_2 = \frac{3}{4}\frac{\Omega}{\omega}\frac{\hbar\Omega}{\zeta}\left\{\ln\left[\sqrt{\Delta(\zeta)+\hbar\omega}+\sqrt{\Delta(\zeta)}\right]-\right.$$
$$\left.-\ln\left[\sqrt{\hbar\omega+(\Delta(\zeta)-\hbar\omega)\,\theta(\Delta(\zeta)-\hbar\omega)}+\sqrt{\Delta(\zeta)-\hbar\omega}\,\theta(\Delta(\zeta)-\hbar\omega)\right]\right\},$$

where ζ is the chemical potential of the carrier and $\theta(z)$ is 1 for $z > 0$ and 0 for $z < 0$. The collision frequency of electrons with impurities

$$\nu_0(\varepsilon) = n_i\sigma_0\sqrt{\frac{2\varepsilon}{m}}$$

and σ_0 is the collision cross section of zero energy electrons with impurities, both in the absence of a magnetic field. C_1 and C_2 reach their maximum values

$$C_{1\,max} \sim \left(\frac{\Omega}{\omega}\frac{\hbar\Omega}{\zeta}\right)^{1/3},$$

$$C_{2\,max} \sim \frac{\Omega}{\omega}\frac{\hbar\Omega}{\zeta}.$$

ACCESSION NR: AP4039653

for values of the magnetic field satisfying the condition

$$\zeta - \hbar\Omega\,(N + \frac{1}{2}) \equiv \Delta\,(\zeta) = \hbar\omega.$$

For higher temperatures

$$\omega \ll T \ll \Omega$$

$$C_{1\,\max} \sim \frac{\lambda\Omega}{\sqrt{\zeta T}},$$

$$C_{2\,\max} \sim \frac{(\lambda\Omega)^2}{\zeta T} \ln \frac{T}{\hbar\omega}.$$

In the low frequency limit

$$\omega \ll \nu \ll \Omega,$$

weakly attenuated waves do not exist in the metal, hence $\omega = 0$. For

$$\nu_{\max} \approx \nu_0 \left(\frac{\Omega^2}{4\varepsilon\nu_0}\right)^{1/3}$$

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ACCESSION NR: AP4039653

$\ll T$ σ_{xx} (H) has the same form as above and

$$C_{1\,\max}=\frac{5}{16}\,\frac{\hbar\Omega}{\sqrt{2\zeta T}}\int\limits_0^\infty\frac{dz}{\sqrt{z}}\,\mathrm{ch}^{-2}z,$$

$$C_{2\,\max}=\frac{3}{32}\,\frac{(\hbar\Omega)^2}{\zeta T}\int\limits_0^\infty\frac{dz}{z+\frac{\hbar\nu_{\max}}{T}}\,\mathrm{ch}^{-2}z\approx$$

$$\approx\frac{3}{32}\,\frac{(\hbar\Omega)^2}{\zeta T}\ln\frac{T}{\hbar\nu_{\max}}.$$

Orig. art. has: 48 equations.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 21Dec63 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: EM NO REF SOV: 007 OTHER: 002

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ACCESSION NR: AP4043344 S/0181/64/006/008/2297/2300

AUTHOR: Skobov, V. G.

TITLE: Contribution to the theory of electromagnetic wave propagation in metals in a magnetic field

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2297-2300

TOPIC TAGS: electromagnetic wave, Fermi statistical theory, dispersion relation, dispersion statistics, metallic crystal lattice, carrier density, carrier mobility, conduction band

ABSTRACT: The author examines the possibility of propagation of fast electromagnetic waves in metals having different densities of carriers of the same polarity, in the presence of a magnetic field. These are similar to the electromagnetic wave which Buchsbaum and Galt (Phys. Fluids v. 4, 1514, 1961) have shown to be propagated in a strong magnetic field when the carrier densities are equal. Ear-

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ACCESSION NR: AP4043344

lier results by the author (with E. A. Kaner, ZhETF v. 45, 610, 1963 and v. 46, 1106, 1964) are used. In view of the impossibility of obtaining an analytic solution for the dispersion equation, the analysis is limited to a simple model in which the effective masses of the electrons and of the holes are equal. It is shown that a fast electromagnetic wave with a line spectrum and plane polarization propagates at an angle to the direction of the magnetic field, with a phase velocity somewhat higher than the Fermi velocity of the carriers. The possibility of propagation of such electromagnetic wave is due to the Fermi statistics of the conduction electrons and is a specific feature of the metal. No such wave could propagate in a Boltzmann plasma, for they would always be subject to Landau damping. In the case considered here the damping of the wave is determined by the scattering of the carriers. "The author is sincerely grateful to E. A. Kaner for a discussion of the work." Orig. art. has: 18 formulas.

ACCESSION NR: AP4043344

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute AN SSSR)

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